desmid floras of the two countries. It is written entirely in Latin. Five excellent plates illustrate the paper.

BOTANY.

LEMNA POLYRRHIZA.— While botanizing last week on the Platte river in Nebraska, I found, near Fremont, large quantities of *Lemna polyrrhiza*, and upon close inspection to my great joy found many specimens in bloom. As this is rarely found in bloom, it may perhaps be deemed worthy of record. I secured specimens which I shall be glad to distribute. I may as well mention also that in the same trip I found *Euphorbia marquiata* in great abundance in western and northwestern Iowa, though Prof. Gray puts it as far west as the "plains of Kansas and Nebraska."— C. E. BESSEY, *Iowa State Agricultural Coll.*

NEW BOTANICAL WORKS. — A new part of Bentham and Hooker's "Genera Plantarum" is in the printer's hands, as we learn from Trimen's "Journal of Botany," and is expected to be out by the end of October. It will comprise Rubiacæ, Compositæ, and the intervening orders.

Mr. M. C. Cook's new journal "Grevillea," devoted to Cryptogamic Botany and its literature, contains much that will interest American botanists. The August number continues Mr. C. A. Peck's "New York Fungi," and announces that a series of papers on North American Fungi, by Rev. J. M. Berkeley will be begun in the September number.

We have received the first number of the "Transactions of the Imperial Botanic Garden at St. Petersburg," an octavo of 164 pages, printed partly in Russian and partly in Latin.

ZOOLOGY.

TORNARIA, THE YOUNG STAGE OF BALANOGLOSSUS. — The development of Tornaria has at last been solved. As is well known Müller, Krohn, Fitz Müller and myself have considered it a starfish embryo. The analogy between a Brachiolaria and Tornaria seems complete and no one questioned the position of the latter till Metznikoff in 1870 was fortunate enough to raise Tornaria to a later phase of development — to his astonishment it changed into an annelid. Of course, in view of the affinities (first sug-

gested by Huxley) of the worms and echinoderms, it was most important that Metznikoff's observations should be repeated, and if possible the genus of annelids, of which Tornaria was the young, accurately ascertained. The annelid raised by Metznikoff was most peculiar and, in absence of other evidence, he suggested the possibility of its being a young Balanoglossus. I have been able this summer to raise Tornaria and to obtain young annelids somewhat older than those observed by Metznikoff, tracing at the same time the development of the branchiæ as diverticula from the œsophagus, and also to find the young annelid of Tornaria a species of Balanoglossus (of which the adult is quite common at low water mark at Newport and at Beverly, Mass.), but slightly older than those raised directly from the Tornaria stage. The details of this interesting embryology will shortly be published. — A. Agassiz.

The Peculiar Coloration of Fishes, mentioned by your correspondent Richard Bliss, is, it appears to me, susceptible of easy explanation. The pigment-cells containing the brilliant crimson, adorning the skins of *cyprinidæ* and other fishes, are readily opened and closed under excitement and other influences. When brilliant *Cyprinid* are confined in aquaria they speedily lose their color by the closing of the cells, but it may be readily restored by scratching the surface with the point of an instrument, which reopens the cells. Even specimens freshly placed in weak alcohol may sometimes be made to display bright color by the same process. When the alcohol is strong, it may so contract the surrounding tissue as to expose the contents of the cells, as in the case observed by Mr. Bliss. — Edw. D. Cope.

A New Species of Passerculus from Eastern Massachusetts. In December, 1868, I took a sparrow at Ipswich which was then supposed to be *Centronyx Bairdii*. In the autumn of 1870, I took two more of the same species, also at Ipswich; but upon visiting the Smithsonian Institution this spring and comparing these specimens with the original *C. Bairdii*, I have come to the conclusion that they are specifically distinct. They are closely allied to the savanna sparrow and evidently belong to the same genus; I therefore propose to name the Massachusetts bird *Passerculus princeps*, the large barren ground sparrow. The *Centronyx Bairdii* should also, I think, be referred to the genus Passerculus, for I can

see no good generic character by which it can be separated. A description and figure of this new Passerculus, will be found in the "Naturalists' Guide" (page 112) under the name of *Centronyx Bairdii*, with a history of the capture of the first specimen and also an account of how this name came to be applied to it. It will likewise be understood that the name of *Centronyx Bairdii*, given in a notice in the May number of the NATURALIST (page 307) by Mr. Brewster, should read *Passerculus princeps*.

The *Thalasseus Havelii*, mentioned by Mr. Brewster in the same article, should also read *Sterna Forsterii*, for I have become convinced by carefully studying a large number of specimens that the *Thalasseus Havelii* = *Sterna Havelii* of authors, is the young of *Sterna Forsterii*. — C. J. MAYNARD.

GEOLOGY.

OIL CREEK PETROLEUM KNOWN IN THE LAST CENTURY.—At a meeting of the California Academy of Sciences, July 15th, Mr. R. E. C. Stearns presented a communication, embodying the following extract from the Massachusetts Magazine published in the year 1789, Vol. i, p. 416, showing that the existence of petroleum in Pennsylvania was known at that period:

"In the northern part of Pennsylvania, there is a creek called Oil Creek, which empties into the Alleghany river, It issues from a spring, on the top of which floats an oil similar to that called Barbadoes tar; and from which one man may gather several gallons in a day. The troops sent to guard the western posts, halted at this spring, collected some of the oil and bathed their joints with it. This gave them great relief for the rheumatism with which they were afflicted. The water of which the troops drank freely operated as a gentle purge."

MICROSCOPY.

SUCCESSIVE POLARIZATION OF LIGHT.—This curious scientific procedure has been accomplished in connection with the ordinary polarizing microscope, by Mr. J. W. Stephenson. In the selenite fitting of the polarizer, between the polarizing prism and the stage, he places, mounted so as to have a rotating movement of its own, a truncated glass prism having its broadest face silvered by the sugar of milk process, and its other faces so situated that light, polarized by passing through the Nicol's prism in a direction